

Microsoft®

user's guide.



Microsoft® Broadband Networking

5-Port Switch | MN-150



Important

Do not plug a phone jack (RJ-11) into any Ethernet (RJ-45) port on your switch. Doing so might damage the device. You must use twisted pair cables with RJ-45 connectors that conform to FCC standards in the device's Ethernet ports.



Important

Ne branchez pas une ligne téléphonique dans aucuns des port de réseau (RJ45).



Caution

For use with UL Listed, CSA and GS approved personal computers.

Not intended for use in machinery, medical, or industrial applications.

For indoor use only.

Use only the AC Adapter provided with the unit (Model Number: FA-4W000).



Avertissement

N'utiliser qu'avec des composantes homologuées UL, CSA ou TUV.

Ne pas utiliser ce dispositif dans une application industrielle ou médicale.

N'utiliser qu'à l'intérieur.

N'utiliser qu'avec le bloc d'alimentation fourni avec cet appareil (No de modèle: FA-4W000).

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1 | introduction.

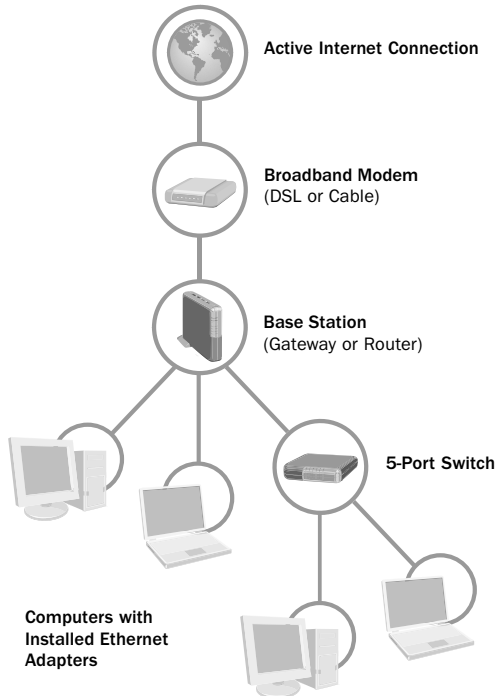
Introducing the Broadband Networking 5-Port Switch

Congratulations on your purchase of the Microsoft® Broadband Networking 5-Port Switch. The switch can be used in a number of different ways. It will let you expand your existing Ethernet network by connecting additional computers, printers, scanners, and other Ethernet devices. The switch will also let you form a new local area network (LAN) by connecting two or more computers. A typical network configuration that includes a switch is illustrated in the following example:



Note

Each computer that connects to your switch requires an Ethernet adapter or available Ethernet port.



The 5-port switch will work with any 10 Mbps or 100 Mbps Ethernet-based network. Although this guide focuses on Windows-based computers, you can use the switch with nearly any operating system. For more information about setting up non-Windows-based networks, see the documentation for your operating system.

Do You Have Everything You Need to Install Your Switch?

Included in the Box:



5-Port Switch
(MN-150)



3.8-Volt
Power Adapter



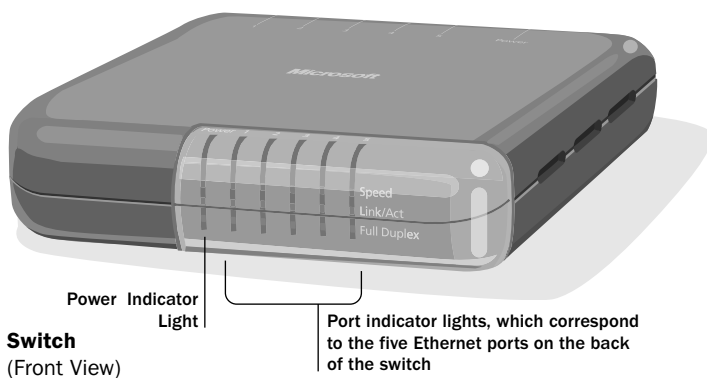
User's Guide

Also Required (but not included in the box):

- One Ethernet cable for each computer or network device to be attached
- One Ethernet adapter or an available internal Ethernet port on each computer or device you are connecting to the switch

Your Switch and Its Connections

The following diagrams show front and back views of the switch, and the location of all ports and indicator lights. The labels of each port and indicator light are arranged along the top of the switch casing for easy reading.



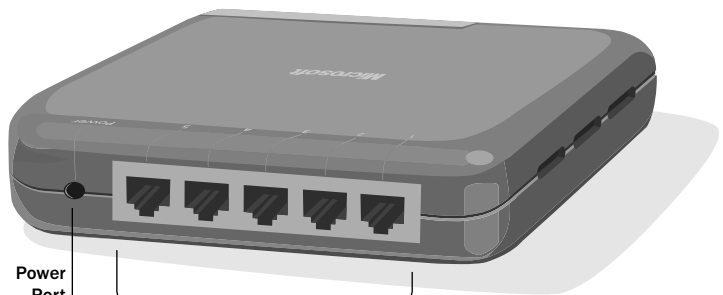
The switch's front panel contains one power light and 15 additional status-indicator lights that help you monitor and troubleshoot network connectivity and activity. Each vertical line of three lights

corresponds to one of the five ports on the back of the switch. The lights for each port will be on, off, or blinking, depending on the current network configuration and activity for that port. The Power light is to the left of the port indicator lights. The following table describes the meaning of each light.

| Light | Condition | Status |
|---------------|-----------|---|
| Power | On | The switch is receiving power. |
| Speed | On | The port is transmitting or receiving packets at 100 megabits per second (Mbps). |
| | Off | The port is transmitting or receiving packets at 10 Mbps. |
| Link/Activity | On | The port has established a connection with a network device. |
| | Off | The port has not established a connection with a network device. |
| | Blinking | The port is transmitting or receiving data. |
| Full-Duplex | On | The port is operating in full-duplex mode, allowing all devices to transmit and receive data. |
| | Off | The port is running in half-duplex mode, allowing one device to transmit at a time. |

Note
 Full-duplex mode allows your network to transmit and receive data simultaneously. Half-duplex communication is one-way.

Note
 Because the switch automatically detects your Ethernet cable type, all ports will work as 'Uplink' ports.



Switch
 (Back View)

Five Ethernet ports, which correspond to the status indicator lights on the front of the Switch

The switch is powered by an AC power adapter. The design of the switch allows Ethernet cables to be connected to and disconnected from the switch without interrupting the activity on existing cables. You do not need to unplug the power cord from the switch to change your network configuration.

About Ethernet Connections

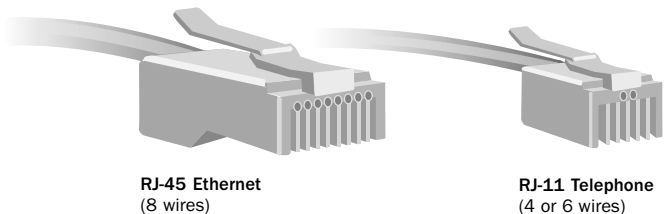
Ethernet is the most commonly used wired network protocol, with connection speeds of 10 Mbps, 100 Mbps, or higher. Your switch will transmit data at either 10 or 100 Mbps. The switch's auto-negotiation feature automatically determines the rate of your network connections and uses the fastest speed available.

As you set up your network, keep in mind that power outlets, fluorescent lights, power supplies, and coiled up or extra-long cables can interfere with Ethernet transmission and also produce interference.

Use Ethernet cables to connect your adapter to devices on your network. Any Ethernet-compatible network device will have one or more high-powered Ethernet ports. Some examples of network devices are:

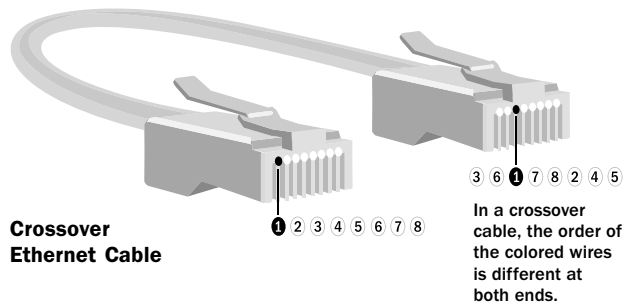
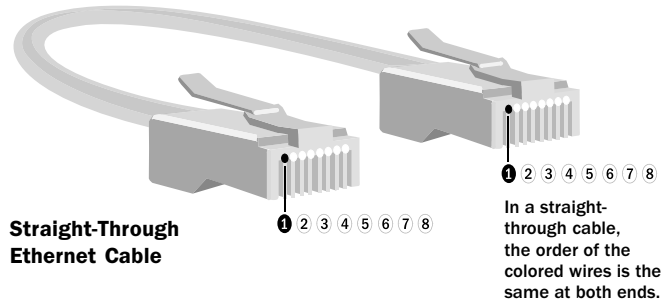
- Routers, gateways, or base stations, such as the Microsoft Broadband Networking Wired Base Station
- Broadband modems
- Computers with Ethernet adapters
- Ethernet switches and hubs

Network components such as your 5-port switch are connected to one another by Ethernet cables. An Ethernet cable resembles a phone cord, but has larger connectors at each end. To determine whether a cable is an Ethernet or phone cable, you can count the number of wires or contacts visible in the connector at either end of the cable. Ethernet (RJ-45) connectors and cables contain eight wires, and phone (RJ-11) cables contain either four or six wires.



Straight-Through and Crossover Cables

Data is sent and received through specific wires within an Ethernet cable. Depending on the arrangement of its sending and receiving wires, an Ethernet cable is either a “straight-through” type or a “crossover” type. The following diagram demonstrates how to differentiate between the two types.



Your 5-port switch supports both straight-through and crossover cables. The switch automatically detects the type of Ethernet cable you are using and functions accordingly.

Connecting to Broadband Modems

When you connect your switch to a broadband modem, it is important to use either the cable that came with your modem or the same type of cable. Many modems use a crossover cable to connect to the network. If you are unsure about the type of Ethernet cable to use, see the documentation for your broadband modem.



2 | **planning.**

Planning Your Network

Your Microsoft® Broadband Networking 5-Port Switch can be configured in several ways. This chapter will help you locate setup instructions for your network configuration.

Each computer to be connected to the network must have an installed network adapter with an available Ethernet port, and an Ethernet cable.

As you configure your network, it's a good idea to keep network security in mind. A switch is a simple pass-through device that does not monitor or protect network information in any way. For this reason, each setup option in this chapter includes information about the security issues that you should keep in mind. For more information about security, see Chapter 4.

Which Setup Option Best Matches Your Network?

The following four scenarios describe the common ways to use a switch. Select the scenario that matches how you plan to set up your network, and then see Chapter 3 for setup instructions.

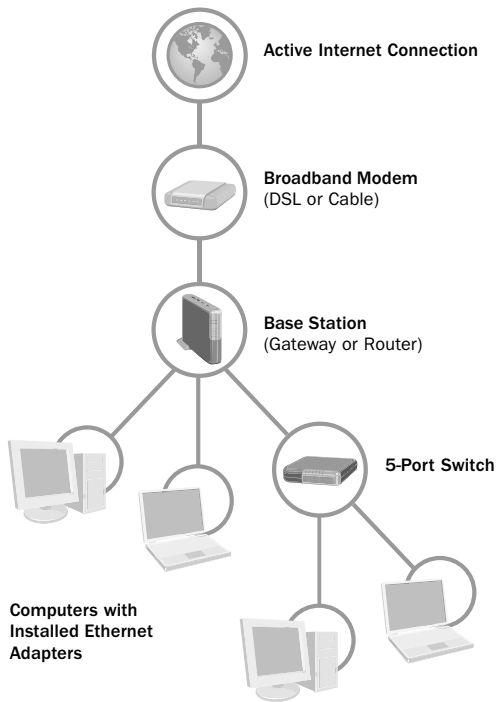
Option A:

I want to expand my existing network to increase the number of available Ethernet ports.

A switch can expand your current network by providing a connection point for additional computers. This option is useful if you have no available Ethernet ports or if you want to branch your network to another area (such as a second room).

The switch can connect to a base station (gateway or router), hub, switch, or any other device that has available Ethernet ports. For ideas about connecting the switch to your existing network, refer to the diagram on the following page.

After you set up the switch by using Option A, your network will resemble this diagram:



If you disconnect existing network wires for use in a different location, be sure to consult the documentation for your existing network device to determine the necessary cable type. Although your 5-port switch supports connections to both straight-through and crossover Ethernet cables, other devices on your network might require a specific cable type.

Security Considerations for Option A

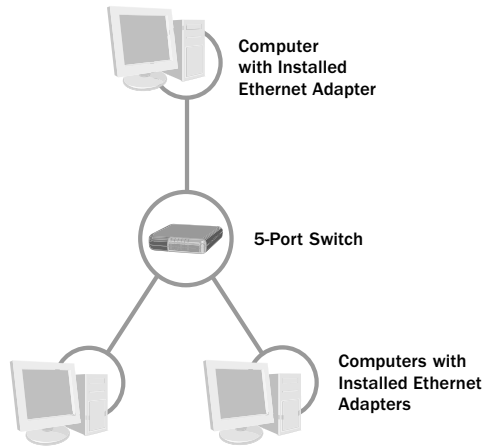
Because a switch provides no security features, it cannot make your network secure. Other networking hardware and software must provide the necessary security. When you plan your network using Option A, make sure that all computers are behind a firewall or that your broadband modem uses Network Address Translation (NAT) technology to hide your computers from unauthorized access over the Internet.

Option B:

I want to share files or printers between two or more computers that are not connected to the Internet.

Your 5-port switch can be used to connect two or more computers in a local area network (LAN) that does not have Internet access. By using this setup option, you can connect up to five computers and share files and printers among them.

After you set up the switch by using Option B, your network will resemble this diagram:



Security Considerations for Option B

Because the network configuration under this option has no connection to external networks or the Internet, neither a firewall nor Network Address Translation (NAT) software is required to protect your network.

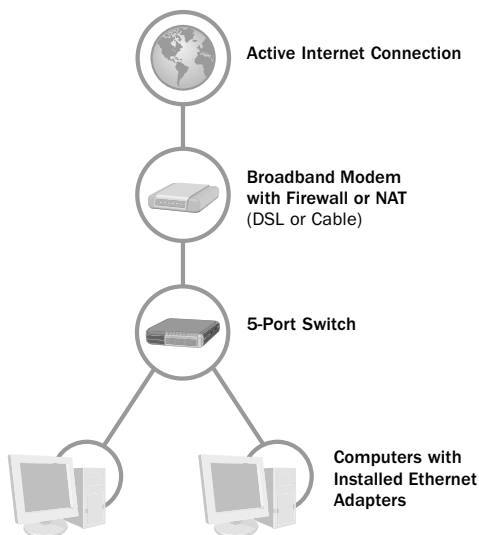
Option C:

My broadband modem has a firewall, and I want to use the switch to add more computers to my network.

In this configuration, your 5-port switch is attached by Ethernet cables to your broadband modem and to the computer that hosts the modem. The switch then serves as a central connection point for up to three additional computers. This option requires one Ethernet cable to connect the switch to your computer and an additional Ethernet cable for each additional computer.

If your Internet service provider (ISP) uses Dynamic IP (also called DHCP) addressing, your modem must be able to provide IP addresses for all computers to be connected to your network. For more information, see your modem documentation.

After you set up the switch by using Option C, your network will resemble this diagram:



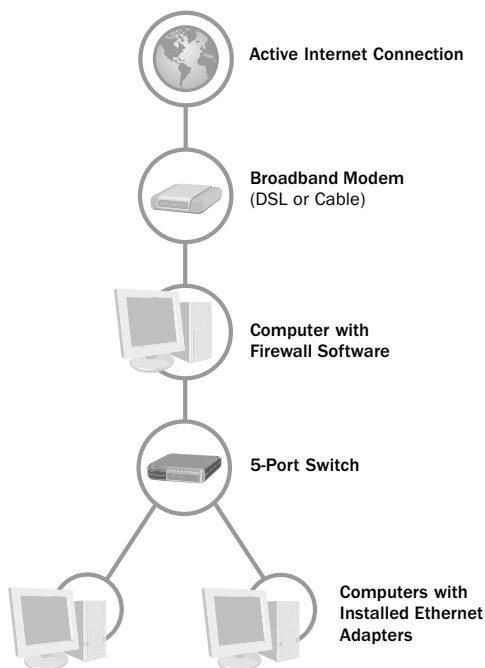
Security Considerations for Option C

Because a switch provides no security features, it cannot make your network secure. Your other networking hardware and software must provide the necessary security. When you plan your network under this setup option, you should make sure that your modem contains a hardware firewall or uses Network Address Translation (NAT) technology to hide your computers from unauthorized access over the Internet. In this configuration, a broadband modem with NAT enabled would provide partial protection. Software on each computer, such as the Internet Connection Firewall for Windows XP, can also provide security. Many routers or gateways, such as the Microsoft Broadband Networking Base Station, provide firewall protection and could be used between the switch and the broadband modem to provide a higher level of security.

Option D:
My computer runs firewall software and is directly connected to my broadband modem.

This setup option allows you to add one or more computers to a network that already has a computer equipped with Network Address Translation (NAT) or firewall software. In this configuration, the existing networked computer must have an available Ethernet port for connecting the switch. To allow the additional networked computers to access the Internet, the existing networked computer must always be running and use Internet Connection Sharing (ICS) software.

After you set up the switch by using Option D, your network will resemble this diagram:



Security Considerations for Option D

When the first device connected to your broadband modem is a computer instead of a base station (router or gateway), the computer must provide the security necessary to protect the other computers on your network. This computer should be running firewall software, such as the Internet Connection Firewall included in Windows XP.

You might also consider adding a Microsoft Broadband Networking Base Station to your network. A base station offers several advantages. It allows multiple computers to connect to the Internet through a secure connection. It uses Network Address Translation (NAT) software to hide your computer from unauthorized access outside your network. Using a base station also allows you to turn off any computer on your network without interfering with another computer's Internet access.

3 | setting up.

Installing and Connecting Your 5-Port Switch

This chapter will guide you through the process of connecting the Microsoft® Broadband Networking 5-Port Switch. Your connection process might vary, depending on the setup option you selected in Chapter 2.

Step 1: Choose a Location for Your Switch

Use the following guidelines to choose a good position and location for your switch.

- All Ethernet ports should be easily accessible.
- The status lights should be clearly visible.
- The space on each side of the switch should be at least 2 inches (5.08 cm) for proper air flow.
- The Ethernet cables should not be adjacent to power lines or other sources of electrical interference.
- The power source should be connected to a surge protector.

Step 2: Connect the Switch to a Power Outlet

1. Plug the provided power adapter into the Power port on the back of the switch.
2. Plug the power adapter into a surge protector or other protected electrical outlet.

The green Power indicator on the front of your switch lights up, indicating that the switch is receiving power.

Step 3: Connect Your Switch to the Network

1. Connect one end of an unattached Ethernet cable to an empty Ethernet port on the 5-port switch.
2. Connect the other end of the Ethernet cable to the device to be networked.

Caution

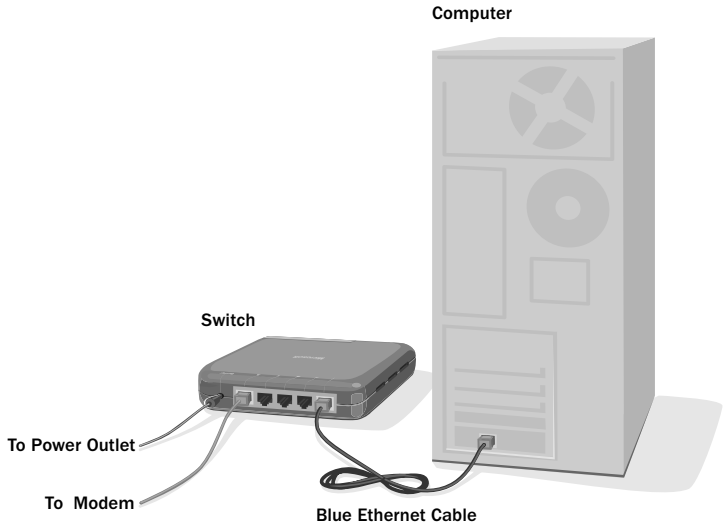
To prevent major damage that can result from a sudden power outage, connect all computer and electronic equipment to a surge protector.

3. Connect each remaining computer or device to the switch by using a straight-through or crossover Ethernet cable.

After you have finished connecting your switch, your setup will resemble the following illustration.

**Note**

Although it does not matter which port you use to connect network devices, you might want to connect your switch to port 1 for easy reconfiguration and troubleshooting.



Step 4: Test Your Switch

1. Turn on all computers that are connected to your switch.
2. Check the Link/Activity lights on the switch to verify that each Ethernet cable is properly connected to the switch.

Each port on the switch that is connected to a computer using an Ethernet cable has a green light. If the light is blinking, data is traveling through that port and over the Ethernet cable.

What's Next?

Your switch should now be fully connected and functioning as part of your network. If you need to change your network configuration, you can add or remove computers from your switch without disconnecting the rest of your network.

To learn more about protecting your network from viruses and hackers, see Chapter 4.

If you have any problems connecting to or using your network, see the troubleshooting information in Chapter 5.



4 | security.

Securing Your Network

Protecting your data and programs from security threats, such as computer viruses and hackers, is very important. This chapter provides general information about steps you can take to protect your network.

Protect Your Network from Computer Viruses

A switch will not provide security for your network, because it simply passes data from one cable to another.

To avoid having a problem with viruses on your network, consider the following suggestions:

- Educate yourself about how viruses are commonly spread so that you do not spread one yourself.
 - Do not load a program from an untrustworthy source on one of your network computers. E-mail attachments from people you don't know or files from the Internet or online bulletin boards are particularly risky.
 - Never open e-mail attachments that you are not expecting.
 - Scan all floppy disks before copying or opening files from them, or before starting your computer from them.
- Install an antivirus program on each computer on your network and use it regularly to check your computers for viruses. Remember to update the antivirus program on a regular basis.
- Learn the common signs of viruses: unusual messages that appear on your screen, decreased system performance, missing data, and inability to access your hard drive. If you notice any of these problems on your computer, run your antivirus software immediately to minimize the chances of losing data.

Protect Your Network from Hackers

If you have not already done so, consider purchasing the Microsoft® Broadband Networking Wired Base Station to establish a security layer between your network computers and the Internet. The security mechanisms provided by the base station include a firewall and Network Address Translation (NAT).

A firewall is a barrier that helps protect your network from outside intruders. Like an actual firewall built to prevent fire from spreading between adjoining buildings, computer firewalls help prevent the spread of unauthorized communication between an individual computer or group of networked computers and the Internet.

The firewall specifies what information can be communicated from the computers on your network to the Internet, and from the Internet to the computers on your network.

NAT hides the IP addresses of the computers on a network from the Internet so that only the base station's IP address is visible on the Internet. Hiding these addresses provides another layer of protection against hackers trying to access the computers on your network.

5 | troubleshooting.

Diagnosing and Solving Problems with Your 5-Port Switch

This chapter will help you solve installation and setup problems with your Microsoft® Broadband Networking 5-Port Switch. The following areas are covered:

- Setup and Hardware Problems
- Network and Internet Problems
- File and Printer Sharing Problems

If the problem you are experiencing is not covered in this chapter, you can find more troubleshooting information on the Microsoft Broadband Networking Web site at <http://www.microsoft.com/broadbandnetworking/>.

Setup and Hardware Problems

This section will help you solve common setup and hardware-related problems with your switch.

I'm having problems connecting my network hardware, or my computer is not detecting the network connection.

- Verify that the switch is plugged into a power source, and that the power indicator light is green.
- Check the Ethernet cables between the switch and each of the computers, and check the Ethernet cable between the switch and the modem.

When a cable has been correctly connected between your switch and another network device, the green Link LED will go on. If it does not, try a different cable or type of cable.

- Check your modem documentation to verify that you are using the proper type of Ethernet cable.
- Make sure that all cables are securely fastened to the correct ports and that all network adapters are properly seated in the correct ports or slots.

When you insert an Ethernet cable into an Ethernet port, the connector will make an audible click as it snaps into place. If the cable does not snap into place, the connector might be damaged.



Note

Checking the status of your Internet connection, network, and computer on every computer on the network is a quick way to determine how large a problem is.



Note

For computers that are running Microsoft Windows® 2000 or Windows XP, you must be logged on as an administrator to perform software installations or change network settings. If you do not have administrative rights, see Windows Help.

Network and Internet Problems

This section will help you solve common installation and setup problems as you integrate the switch with a new or existing network.

My computers recognize my network, but it is not working correctly.

- Verify that you have the correct network settings.

Incorrect network settings will prevent networked computers from communicating properly. For example, a computer might try to detect a network by using the wrong name or by using a different communication protocol than that of all of the other computers on the network.

You can view and modify network settings by clicking **Network** in the Windows Control Panel. For more information about determining or verifying network settings, see Windows Help.

My network is slow.

- Try decreasing the number of computers that are simultaneously accessing your network.

Your network has a limited amount of bandwidth for transmitting data. As more computers access your network at the same time, the bandwidth must be split up between all computers. By reducing the number of computers accessing your network, you can increase the bandwidth available to each computer.

You might find that you need more bandwidth to use all of your computers on the network. If your connection is still too slow, contact your Internet service provider (ISP) to verify that there are no problems with your connection or to inquire about upgrading to a faster connection.

My computer can't find my workgroup.

- Check the name of the workgroup in network settings on another computer in the workgroup.

The workgroup name is on the Advanced Network Settings page, which you can access from the Customize Your Network page in the Broadband Network Utility.

If your computer can't find your workgroup, it might be looking for the workgroup with the wrong name or you might be logged on to a domain. You cannot be logged on to a domain and a workgroup at the same time.

My existing network used to work, but now it doesn't.

- Check the existing network installation to verify that all cables are still attached and all link/activity lights on the other network devices read correctly.
- Verify that the network settings on all of the computers are correct.

My newly networked computer sees my network but can't find the Internet.

- Check the Internet settings on another computer in the network.

If your computer can't access the Internet, it might be looking for the wrong IP address or trying to use the wrong Internet protocol. Although the IP address might have been correct on this computer previously, if you changed Internet service providers (ISP) or reconfigured your network, then all of the IP addresses in your network could have changed as well. See the documentation that you received from your ISP for the correct IP addresses and protocols.

- Make sure the computer has been correctly configured to work with your ISP's connection settings. Compare the settings of a computer on the existing network with those of the new computer being added. Verify that both computers are attempting to connect to the Internet in the same way. For example, if your ISP uses a Dynamic IP (DHCP) connection, make sure all computers on your network are set to DHCP in the Network section of the Windows Control Panel. For more information, search for Network or DHCP in Windows Help.

File and Printer Sharing Problems

This section will help you solve common problems with sharing files and printers on your network.

To learn how to add or share files and printers over your network, see Windows Help.

I cannot access shared files over my network.

If you want to share files between computers on your network, all computers must belong to the same workgroup. Check the workgroup names on each computer by using the following instructions.

Windows XP:

1. Click **Start**, and then click **Control Panel**.
2. Double-click **System**, and then click the **Computer Name** tab.

Windows 2000:

1. Click **Start**, point to **Settings**, and then click **Control Panel**.
2. Double-click **System**.
3. Click the **Network Identification** tab.

Windows 98, Windows 98 SE, and Windows Me:

1. Click **Start**, point to **Settings**, and then click **Control Panel**.
2. Double-click **Network**, and then click the **Identification** tab.

If you need to change your workgroup name on a computer, click **Change**, and then type the correct workgroup name. After restarting your computer and joining the new workgroup, try sharing or accessing shared files again.

My printer is connected directly to my computer and is not being recognized by other computers on my network.

- Check to make sure that the printer is turned on.
- Verify that the cable connecting the printer and the computer is securely attached.
- Try printing by using the self-test feature built into your printer. Each printer's self-test feature is slightly different. See your printer documentation for specific instructions.

If the printer self-test does not work, see your printer troubleshooting documentation for more information.

If the printer self-test works correctly, the problem might be with your network connection or with your printer drivers.

- Check to make sure all computers on the network have the proper printer driver installed.

You can install the printer driver by opening the Printers page in the Control Panel. If Windows prompts you for a driver disk, use the driver disk that came with your printer. For more information about configuring your printer, see Windows Help.

- Verify that all network cables between the computers and the printer are securely connected.

You can check to see if the network is recognizing the connection of a cable by inspecting the link lights associated with the Ethernet ports on your hardware. When the cable is connected successfully, the link light should be illuminated.

If one of your network cables is connected to a network port that does not have an illuminated link light, there might be a problem with the cable itself. Try using a different Ethernet cable to make the connection.

My printer is connected directly to my network, and I cannot access the printer from the computers on my network.

- Check to make sure that the printer is turned on.
- Verify that all network cables between the computers and the printer are securely connected.

You can check to see if the network recognizes the connection by inspecting the link lights associated with the Ethernet ports on your hardware. When the cable is connected successfully, the link light should be illuminated.

If one of your network cables is connected to a network port that does not have an illuminated link light, there may be a problem with the Ethernet port or the cable itself. Try using a different Ethernet cable to make the connection.

- Try printing by using the self-test feature built into your printer. Each printer's self-test feature is slightly different. See your printer documentation for specific instructions.

If the printer self-test does not work, see your printer troubleshooting documentation for more information.

If the printer self-test works correctly, the problem might be with your network connection or with your printer drivers.

- Check to make sure all computers on the network have the proper printer driver installed.

You can install the printer driver by opening the Printers page in the Control Panel. If Windows prompts you for a driver disk, use the driver that came with your printer. For more information about configuring your printer, see Windows Help.

My networked printer is visible on the network, but it does not print.

- Try resetting the printer. See your printer documentation for instructions.
- If you are troubleshooting a printer that is connected directly to the network, try printing a test page by using the printer's diagnostic features. If the test page prints correctly, the problem might be in the network or the printer networking settings.
- Check the program from which you are trying to print to ensure that printing is enabled and the correct printer is selected.



reference.

Getting Help

Visit Us on the Web

Please visit our Web site at
<http://www.microsoft.com/broadbandnetworking/>

Technical Support

Product Name:

Microsoft® Broadband Networking 5-Port Switch

Support Information Online:

<http://support.microsoft.com/directory/productsupportoption.asp>

In Canada, visit <http://www.microsoft.ca/support/>

Online Support:

Work with a Microsoft Support Professional over the Internet.
Submit your issue online:

<http://support.microsoft.com/directory/onlinesr.asp>

Phone Support:

Toll-free support for U.S. customers: (800) 936-3900. For customers in Canada: (800) 668-7975. These numbers are only for support of Microsoft Broadband Networking products. Please do not use these phone numbers for support of other Microsoft products.

TTY Users:

Microsoft text telephone (TTY/TDD) services are available at (425) 635-4948 in Washington state or (800) 892-5234 elsewhere in the United States. Call (905) 568-9641 in Canada.

Worldwide:

The support terms listed here are available in the United States and Canada only.

Support outside the United States and Canada may vary.

For regional contact details, please visit

<http://support.microsoft.com/default.aspx?scid=/international.aspx?>

Conditions:

Microsoft's support services are subject to then-current prices, terms, and conditions, which are subject to change without notice.

Regulatory Information

United States Radio and TV Interference Regulations

This device complies with Part 15 of the U.S. Federal Communications Commission (FCC) rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Microsoft hardware device(s) that accompanies this software can radiate radio frequency (RF) energy. If not installed and used in strict accordance with the instructions given in the printed documentation and software Help file, the device may cause harmful interference with other radio-communications devices (for example AM/FM radios, televisions, baby monitors, cordless phones, etc.). Any cable that is connected to the device must be a shielded cable that is properly grounded. There is, however, no guarantee that RF interference will not occur in a particular installation.

Your Microsoft hardware device has been tested, and it complies with the limits for a Class B digital device in accordance with the specifications in Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful RF interference in a residential installation.

To determine if your hardware device is causing interference to other radio-communications devices, disconnect the device from your computer. If the interference stops, it was probably caused by the device. If the interference continues after you disconnect the hardware device, turn the computer off and then on again. If the interference stopped when the computer was off, check to see if one of the input/output (I/O) devices or one of the computer's internal accessory boards is causing the problem. Disconnect the I/O devices one at a time and see if the interference stops.

If this hardware device does cause interference, try the following measures to correct it:

- Relocate the antenna of the other radio-communications device (for example AM/FM Radios, televisions, baby monitors, cordless phones, etc.) until the interference stops.
- Move the hardware device farther away from the radio or TV, or move it to one side or the other of the radio or TV.
- Plug the computer into a different power outlet so that the hardware device and radio or TV are on different circuits controlled by different circuit breakers or fuses.
- If necessary, ask your computer dealer or an experienced radio-TV technician for more suggestions. You may find helpful information in the booklet "The Interference Handbook" (1995), published by the FCC. The booklet is available from the FCC at 1-888-CALL FCC or at <http://www.fcc.gov/cib/Publications/tvibook.html>.

Note

Any changes or modifications not expressly approved by Microsoft could void the user's authority to operate this device.

For use with UL Listed and GS approved personal computers.

Not intended for use in machinery or industrial applications.

Tested to comply with FCC standards. For home and office use. Model Number: MN-100, MN-110, MN-120, MN-130, MN-150, MN-500, MN-510, MN-520.

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399.
(800) 426-9400 (United States)
(800) 933-4750 (Canada)

Canadian Radiocommunication Regulations

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Limited Warranty

PLEASE READ THIS MANUFACTURER'S GUARANTEE CAREFULLY TO UNDERSTAND YOUR RIGHTS AND OBLIGATIONS

MANUFACTURER'S GUARANTEE AND LIMITATION OF LIABILITY

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Limited Warranty Continued

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Technical Specifications

5-Port Switch

| | |
|------------------------------|---|
| Standards | IEEE 802.3 Ethernet; IEEE 802.3u Fast Ethernet; |
| Network Interface | Five 10/100 Mbps switched Ethernet/IEEE 802.3 ports; RJ-45 connectors; 10BASE-T: Cat 3 UTP cable or better; 100BASE-TX: Cat 5 UTP cable or better; 10/100 Mbps auto negotiation; Full-duplex support; Auto-crossover cable adaptation |
| Data rate | 10 and 100 Mbps, full- and half-duplex |
| Indicators | Power: Power LED Link/Act: Five Link/Activity LEDs (one per port) Speed: Five Speed LEDs (one per port), indicate 10 or 100 Mbps FDX: Five Full-Duplex LEDs (one per port) |
| Power | 3.8V @ 0.8A (Power adapter 3.8V DC @ 1A) |
| Operating Temperature | 0 to 40 °C |
| Storage Temperature | -25 to 60 °C |
| Humidity | 10 to 95 percent non-condensing |
| Emissions | FCC Part 15 Class B compliant; Canada ICES-003 |
| Safety | UL 60950 / CSA-C22.2 No 60950 |
| Physical Dimensions | 1.2" x 5.3" x 3.7" (30.5 x 134.6 x 94 mm) |
| Weight | 6 oz (170.3g) without power adapter |

System Requirements

To use the Microsoft Broadband Networking Ethernet 5-Port Switch:

- Computer with 10 Mbps Ethernet or 100 Mbps Fast Ethernet network adapter
- 120V AC power outlet



glossary.

This glossary contains common terms for wired and wireless networking.

- 100Base-T** Also known as “Fast Ethernet,” an Ethernet cable standard with a data transfer rate of up to 100 Mbps.
- 10Base-T** An older Ethernet cable standard with a data transfer rate of up to 10 Mbps.
- 802.11, 802.11b** A family of IEEE-defined specifications for wireless networks. Includes the 802.11b standard, which supports high-speed (up to 11 Mbps) wireless data transmission. Microsoft® Broadband Networking wireless products comply with the 802.11b standard.
- 802.3** The IEEE-defined specification that describes the characteristics of Ethernet connections.
- access point** See **wireless access point**.
- ad hoc network** A solely wireless computer-to-computer network. Unlike an infrastructure network, an ad hoc network does not include a central base station, router, or gateway.
- adapter** See network adapter.
- base station** A device (also known as a router or gateway) that acts as a central point for networked devices, receives transmitted messages, and forwards them. Microsoft Broadband Networking base stations can link many computers on a single network, and can share a secure Internet connection with wired and wireless devices.
- broadband connection** A high-speed connection, typically 256 Kbps or faster. Broadband services include cable modems and DSL.
- broadband modem** A device that enables a broadband connection to access the Internet. The two most common types of broadband modems are cable modems, which rely upon cable television infrastructure, and DSL modems, which rely upon telephone lines operating at DSL speeds.
- cable modem** See **broadband modem**.
- CAT 5 cable** Abbreviation for “Category 5 cable.” A type of Ethernet cable that has a maximum data rate of 100 Mbps.
- client** Any computer or program that connects to, or requests the services of, another computer or program on a network. For a local area network or the Internet, a client is a computer that uses shared network resources provided by a server.

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| client/server network | A network of two or more computers that rely upon a central server to mediate the connections or provide additional system resources. This dependence upon a server differentiates a client/server network from a peer-to-peer network. |
| computer name | A name that uniquely identifies a computer on the network so that all its shared resources can be accessed by other computers on the network. One computer's name cannot be the same as any other computer or domain name on the network. |
| crossover cable | See Ethernet cable . |
| DHCP | Acronym for "Dynamic Host Configuration Protocol." A TCP/IP protocol that automatically assigns temporary IP addresses to computers on a local area network. Microsoft Broadband Networking base stations support the use of DHCP which, combined with ICS, allows you to share one Internet connection with multiple computers on a network. |
| dial-up connection | An Internet connection of limited duration that uses a public telephone network rather than a dedicated circuit or some other type of private network. The Microsoft Broadband Networking hardware does not support the use of a dial-up connection to the Internet. |
| DNS | Acronym for "Domain Name System." A data query service chiefly used on the Internet for translating host names into Internet addresses. The DNS database maps DNS domain names to IP addresses, so that users can locate computers and services through user-friendly names. |
| domain | In a networked computer environment, a collection of computers that share a common domain database and security policy. A domain is administered as a unit with common rules and procedures, and each domain has a unique name. |
| driver | Within a networking context, mediates communication between a computer and a network adapter installed on that computer. |
| DSL | Acronym for "Digital Subscriber Line." A constant, high-speed digital connection to the Internet that uses standard copper telephone wires. |
| DSL modem | See broadband modem . |
| duplex | A mode of connection; full-duplex transmission allows for the simultaneous transfer of information between the sender and the receiver. Half-duplex transmission allows for the transfer of information in only one direction at a time. |
| dynamic IP address | The IP address assigned (using the DHCP protocol) to a device that requires it. A dynamic IP address can also be assigned to a router by an ISP. |

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| encryption | The process of encoding data to prevent unauthorized access, especially during transmission. Microsoft wireless hardware relies upon encryption to ensure that data transmissions cannot be accessed by users outside the network. Also see WEP . |
| Ethernet | A networking standard that uses cables to provide network access. |
| Ethernet cable | A type of cable that facilitates network communications. |
| firewall | A security system that protects a network from external threats, such as hacker attacks, originating outside the network. A hardware firewall is a connection routing device with specific data-checking settings, that protects all of the devices connected to it. The Microsoft Broadband Networking Base Station includes a hardware firewall. A software firewall resides on a single computer, protecting that computer from external threats. See Microsoft Windows® XP Help for more information about the Internet Connection software firewall. |
| firmware | Software information stored in non-volatile memory on a device. |
| gateway | See base station . |
| gateway address | The IP address used when making a connection outside your immediate network. |
| host name | The DNS name of a device on a network, used to simplify the process of locating computers on a network. |
| hub | A device with multiple ports that serves as a central connection point for communication lines from all devices on a network. When data arrives at one port, it is copied to the other ports. |
| ICS | Acronym for “Internet Connection Sharing.” A software feature in Microsoft Windows that allows computers on a network to access online services through a single Internet connection. Microsoft Broadband Networking hardware replaces software ICS. |
| infrastructure network | A network configuration in which wireless devices connect to an existing network. |
| Internet domain | See domain . |
| IP address | Acronym for “Internet Protocol” address. IP is the protocol within TCP/IP that is used to send data between computers over the Internet. An IP address is an assigned number used to identify a computer that is connected to a network through TCP/IP. An IP address consists of four numbers (each of which can be no greater than 255) separated by periods, such as 192.168.1.1. |
| ISP | Acronym for “Internet Service Provider.” A company that provides individuals or companies access to the Internet. |

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| LAN | Acronym for “local area network.” A group of computers and other devices dispersed over a relatively limited area (for example, a building) and connected by a communications link that enables any device to interact with any other on the network. |
| MAC address | Acronym for “media access control” address. The address that is used for communication between network adapters on the same subnet. Each network adapter is manufactured with its own unique MAC address. |
| Mbps | Abbreviation of “megabits per second.” A unit of bandwidth measurement that defines the speed at which information can be transferred through a network or Ethernet cable. One megabyte is roughly equivalent to eight megabits. |
| modem | A device that facilitates the transmission and reception of information between computers. |
| NAT | Acronym for “network address translation.” The process of converting between IP addresses used within a private network and Internet IP addresses. NAT enables all of the computers on a network to share one IP address. The Microsoft Broadband Networking Base Station supports NAT, which provides an extra layer of network security by masking the actual IP addresses of the computers using a base station. |
| network | A collection of two or more computers that are connected to each other through wired or wireless means. These computers can share access to the Internet and the use of files, printers, and other equipment. |
| network adapter | Also known as a “network interface card” (NIC). An expansion card or other device used to provide network access to a computer, printer, or other device. |
| PC Card | A peripheral that adds memory, mass storage, modem capability, or other networking services to portable computers. |
| peer-to-peer network | Also known as a computer-to-computer network. A network of two or more computers that communicate without using a central server. This lack of reliance upon a server differentiates a peer-to-peer network from a client/server network. |
| Plug and Play | A set of specifications that allows a computer to automatically detect and configure various peripheral devices, such as monitors, modems, and printers. |
| port | A physical connection through which data is transferred between a computer and other devices (such as a printer, monitor, or modem), a network, or another computer. Also, a software channel for network communications. |

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| PPPoE | Acronym for “Point-to-Point Protocol over Ethernet.” A specification for connecting users on an Ethernet network to the Internet by using a broadband connection (typically through a DSL modem). Microsoft Broadband Networking hardware supports PPPoE for connections that require it. |
| protocol | A set of rules that computers use to communicate with each other over a network. |
| RJ-11 connector | An attachment used to join a telephone line to a device such as a modem. |
| RJ-45 connector | An attachment found on the ends of all Ethernet cables. |
| router | See base station . |
| server | A computer that provides shared resources, such as storage space or processing power, to network users. |
| shared folder | A folder on a computer that has been made available for other people to use on a network. |
| shared printer | A printer connected to a computer that has been made available for other people to use on a network. |
| sharing | To make the resources associated with one computer available to users of other computers on a network. |
| SSID | Acronym for “Service Set Identifier,” also known as a “wireless network name.” An SSID value uniquely identifies your network and is case sensitive. |
| static IP address | A permanent Internet address of a computer (assigned by an ISP). |
| straight-through cable | See Ethernet cable . |
| subnet | A distinct network that forms part of a larger computer network. Subnets are connected through routers and can use a shared network address to connect to the Internet. |
| subnet mask | Determines whether two computers on a network can communicate with each other directly. Similar in form to an IP address and typically provided by an ISP. An example of a subnet mask value is 255.255.0.0. |
| switch | A central device that functions similarly to a hub, forwarding packets to specific ports rather than broadcasting every packet to every port. A switch is more efficient when used within a high volume network. |
| TCP/IP | Acronym for “Transmission Control Protocol/Internet Protocol.” A networking protocol that allows computers to communicate across interconnected networks and the Internet. Every computer on the Internet communicates using TCP/IP. |

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| USB | Acronym for “universal serial bus.” A hardware standard for easily connecting peripherals to a computer system. |
| USB adapter | A device that connects to a USB port; the Microsoft Broadband Networking Wireless USB Adapter is a type of USB adapter. |
| USB connector | The end of the USB cable that is plugged into a USB port. |
| USB port | A rectangular slot in a computer into which a USB connector is inserted. |
| WAN | Acronym for “wide area network.” A geographically widespread network that might include many linked local area networks (LANs). |
| WEP | Acronym for “Wired Equivalent Privacy,” also known as “Wireless Security.” A wireless network encryption mechanism that protects data transmitted over wireless networks. If you are operating a wireless network, it is strongly recommended that you enable WEP. |
| Wi-Fi | A commonly used term to mean the wireless 802.11b standard. |
| wireless access point | A device that exchanges data between wireless computers and wired computers on a network. |
| wireless network name | See SSID . |
| WLAN | Acronym for “wireless local area network.” A network that exclusively relies upon wireless technology for the device connections. |
| workgroup | A group of users working on a common project and sharing computer files, typically over a LAN. A user who has a home network that is not being controlled by a domain controller can be a member of a workgroup. |

My Network Settings

Use this page to record your network settings.

Workgroup or domain name: _____

Base station password (if applicable): _____

Wide Area Network (WAN) Settings

Complete this section only if your network has a base station (gateway or router). You can obtain this information from your Internet service provider (ISP). Your ISP might not require all of the settings listed below.

Dynamic IP (DHCP) Settings

Complete this section only if your ISP uses a DHCP connection.

Host name (optional): _____

Adapter MAC address (optional): _____

Static IP Address Settings

Complete this section only if your ISP has assigned you a specific IP address.

Static IP address: _____

Subnet mask: _____

IP gateway address: _____

Primary DNS server: _____

Secondary DNS server: _____

PPPoE Settings

Complete this section only if your ISP uses PPPoE with your DSL connection.

User name: _____

Password: _____

Service name (optional): _____

